

## *Prospect of Tuberculosis Eradication*

UNTIL RECENTLY, discussion of the eradication of tuberculosis has been largely academic. Attractive as it is, the prospect of completely uprooting the disease has seemed remote. In the past several years, however, a demand has been growing for specific programs aimed at eradicating tuberculosis. Behind this demand appear to be dissatisfaction with the rate of progress produced by present tuberculosis control activities; fear that without added stimulation the nation would tolerate a continuing low level of tuberculosis indefinitely; and, perhaps, impatience to finish a difficult and expensive job.

Consideration of the prevalence of tuberculosis in the United States today suggests that planning for eradication must be in terms of many years' work. The 50,000 new cases reported annually indicate that in the nation as a whole tuberculosis is still a major health problem. While there are six States that are reporting an average of fewer than 100 new cases a year, there are also 20 States that are reporting an average of more than 1,000 new cases annually. On this basis alone, therefore, although some areas are significantly closer to it than others, eradication does not seem possible very soon for the nation as a whole.

When attention is directed to tuberculous infection, which carries with it the potential of breakdown into disease, the fact that eradication must take a long time becomes even more apparent. Even if no further infection were to take place, estimates shown in the table indicate that nearly 8 million persons who had already been infected by 1960 would still be

alive in the year 2000. These persons would constitute a sizable reservoir of disease. Actually, of course, people are still being infected, so that by the year 2000 the number infected will be larger than 8 million.

If due attention is given to the facts that eradication of tuberculosis will take many years and that it will be slower and more difficult in some areas than in others, the concept itself is useful. Tuberculosis was once so widespread and its consequence so serious that the present situation seems excellent in comparison. Instead of measuring against the past, if we measure the present situation as it stands, with the thought that there should be no tuberculosis, we will be more realistic. Furthermore, pushing toward eradication should encourage new approaches and discourage complacency with the status quo.

The major objective of tuberculosis control is to prevent the spread of infection, and eradication would be the final achievement of that objective. That is, control is the process of which eradication is the end point. Obviously, therefore, the activities that are most urgent for control are also most urgent in working toward eradication. Adequate treatment of known tuberculosis cases, periodic examination and prophylactic treatment of their contacts, and diagnostic service for identified suspects are indispensable to any tuberculosis program. Until these activities reach a high level of performance, departures into other activities should be strictly limited.

Many communities, however, do have sufficient resources to carry on active casefinding, and often in these areas the level of tuberculosis is low enough so that some of the casefinding methods in use are not very productive. It is in these places that a change of practice is suggested as a further step toward eradication.

The estimate given above of the number of persons already infected who can be expected to

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*This paper was prepared by the staff of the Tuberculosis Branch, Communicable Disease Center, Public Health Service. It is based on discussions of the Tuberculosis Control Advisory Committee of the Public Health Service and has been approved by that committee.*

be living in the year 2000 is a reminder that eradication will be achieved only as future generations grow up without being infected. Even today, in much of the United States, the majority of cases of tuberculosis are not the result of recent infection but the result of breakdown into disease of infections incurred at some time in the past. Infection with tuberculosis provides both a degree of risk and a degree of resistance, and when there is little infectious tuberculosis in the community, the risk factor becomes more important than the resistance factor. In coming years, as the amount of tuberculous disease is, hopefully, sharply reduced, most of the cases that arise will be from old infection.

**Survival to the year 2000 of persons already infected with tuberculosis by 1960**

Year of birth	Age in 1960	Millions of infected persons alive		
		1960	1980	2000
Before 1900-----	60 or over--	15.4	3.2	0
1900-19-----	40-59-----	16.2	11.1	2.3
1920-59-----	0-39-----	8.0	7.6	5.5
<b>Total-----</b>	-----	<b>39.6</b>	<b>21.9</b>	<b>7.8</b>

With this in mind it seems sensible to direct casefinding activities in such a way as to protect children from exposure to tuberculosis. "Special risk" groups would then be specifically defined, not only according to their risk of getting tuberculosis themselves, but also according to their risk of passing the disease on to young people. Certainly all persons known to have tuberculosis should be treated, and all persons suspected of having it should have diagnostic service. But special efforts to find cases would be directed toward persons who live or work with children, even though the yield of new active cases from this kind of casefinding would be lower than that of programs directed, for instance, to homeless men. The nature of the communicability of tuberculosis is such that there is little risk from casual contact, and the subjects for attention could therefore be fairly clearly defined.

This proposed concentration on the people who could infect children would call for regu-

larly repeated procedures applied to a relatively few people over a long period of time, rather than screening procedures applied to great numbers of people occasionally. It would be necessary not only to identify actual cases of tuberculosis among the people in the close environment of children, but also to identify among them those at special risk of developing disease, as candidates for continuing periodic examination and in some instances for prophylactic treatment.

A practical way to begin these activities would be programs for tuberculin testing of children when they first enter school, with careful epidemiologic work to identify source cases and persons at special risk of developing tuberculosis in the families and other associates of reactors. It is true that children who react have already been infected, but it is also true that they can serve as a clue to finding adults who might, if unidentified, infect other children since children live in a world in which there are other children. Relatively few children in this country are tuberculin reactors at school entrance; therefore, examination and long-term followup of their associates would be feasible in many communities.

Procedures, of course, would vary from one community to another according to local practices and resources, but an example of the kind of program that could be set up would be one in which all children first entering school would be tuberculin tested. Any child who reacted would be referred for chest X-ray examination, and at the same time the members of his immediate family would be tuberculin tested, and the adult members X-rayed as well. The parents would be interviewed, not only so that they could receive a full explanation of the implications of tuberculin reaction, but so that names could be obtained of persons outside the immediate family whose association with the child had been sufficiently intimate to warrant followup.

The next procedures would depend upon the findings. Any cases found would, of course, be referred immediately for appropriate treatment. Members of the family of a patient with active disease, at least those who reacted to tuberculin, would be given a course of prophylactic isoniazid. Plans for families in which

no case was found would be made according to the individual members' risk of tuberculosis. In these families, children under 4 years of age who reacted to tuberculin would be given a year of isoniazid prophylaxis. Adult reactors who, after detailed clinical investigation, were found not to have active disease but whose X-rays were suggestive of tuberculosis would receive frequent re-examination and, in some instances, treatment. Other adult reactors would be scheduled for periodic X-rays, as would reactors who had completed a course of prophylactic isoniazid. The frequency of repeat X-rays would depend upon individual risk, as measured by such factors as age (adolescents and young adults being at high risk), photo-fluorographic or roentgenographic findings, deviation from standard body weight, or associated disease.

Another aspect of a program to protect children from infection would be tuberculin testing and, when indicated, X-ray examination of persons whose occupations put them in close contact with young children: for example, teachers and other school employees, babysitters, and employees of day-care centers. Such programs should provide for the same long-

term repeated procedures that would be provided for family members in the program beginning with children entering school. Some communities, where practices make it possible, could also introduce routine tuberculin testing of children in pediatric clinics and well-child conferences, with followup of families similar to that planned for the program for children first entering school.

The extent to which these long-term activities to protect children would be added to present programs, or substituted for certain activities now being carried on, would depend on specific local situations. It seems important to emphasize the long-term nature of the proposal, and the fact that staff and facilities would have to be available for this purpose. Communities in which the tuberculosis problem is such that all available resources are required for services to known cases, contacts, and suspects would be ill advised to undertake such a long-term project until they were able to increase staff and facilities. In many areas, however, resources now used for less purposeful projects could well be redeployed into this kind of work, which must eventually be done if the prospect of eradication is ever to become a reality.

### **Interpretation of Disease Code for Hospitals**

A central office on the International Classification of Diseases Adapted for Hospitals has opened at the American Hospital Association's headquarters in Chicago. The office will interpret and promote use in American hospitals of the coding system adapted by the Public Health Service's National Center for Health Statistics from the basic system of the World Health Organization. The office is sponsored by the American Hospital Association and the American Association of Medical Record Librarians by agreement with the National Center for Health Statistics.